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#### GEOGRAPHIC LOCALITIES

Alabama, *Sternotherus odoratus* 16-21; *Etheostoma* (*Doration*) (*stigmaeum*, *jessiae*) 60-69; *Crystallaria asprella*, *Percina* (3 spp.), *Etheostoma* (7 spp.) 265-

- 274; *Lutjanus campechanus* 846–850; *Fundulus (Zygionectes) notti* 858–862.
- Angola, *Brycinus kingsleyae* 363–372.
- Arizona, *Urosaurus ornatus* 174–178; *Sceloporus (scalaris, virgatus)* 827–833.
- Arkansas, *Etheostoma (Doration) stigmaeum* 60–69; *Ophiodryx aestivus* 191–194; *Etheostoma juliae* 265–274; *Etheostoma (fragi n. comb., uniporum n. comb.)* 496–522.
- Australia, *Labroides dimidiatus* (QLD) 346–355; *Spicospina n. gen. flammocaerulea n. sp. (WA)* 373–381; *Crocodylus johnstoni* (QLD) 549–557, 851–857; *Emydura signata* (QLD) 579–584; *Neobatrachus (sudelli [NSW, QLD, SA, VIC], centralis [SA, WA], kunapellari [WA], aquilonius [NT, WA])* 680–689, 791–801; *Neobatrachus (albipes, fulvus, pelobatoides, pictus, sutor, wilsmorei)* 791–801.
- Balearic Archipelago, *Podarcis lilfordi* 593–595.
- Baltic Sea, *Pungitius pungitius* 558–564.
- Belize, *Staurotypus tripuratus*, *Kinosternon leucostomum* 834–839.
- Bermuda, *Anolis grahami* 421–423.
- Bolivia, *Eleutherodactylus (Craugastor) (fraudator, pluvicanorus n. sp.)* 151–157; *Pygocentrus nattereri* 179–182; *Rhinelepis levis = Cochodon levis* 227–232.
- Borneo, *Leptolalax (gracilis [Sar.], dringi [Sar.], hamidi n. sp. [Sar.], arayai n. sp. [Sab.])* 158–165.
- Brazil, *Gonatodes humeralis* 32–43; *Pygocentrus (ternetzi, nattereri)* 179–182; *Phrynos rufipes* 216–219; *Plecostomus lacerta = Kronichthys lacerta* 227–232; *Characidium (serrano n. sp., orientale n. sp., occidentale n. sp., pterostictum, rachovii, tenue, cf. zebra)* 531–548; *Chiasmocleis leucosticta* 585–588; *Tropidurus itambere* 623–628; *Stombus precrenulatus = Proceratophrys schirchi* 629–631; *Cnemidophorus (lemniscatus, cryptus)* 745–757.
- Cabinda, *Brycinus kingsleyae* 363–372.
- California, *Hexagrammos decagrammus* 9–15; *Isurus oxyrinchus* 424–428; *Xenopus laevis*, *Eucyclogobius newberryi* 589–592; *Batrachoseps nigriventris* 697–705; *Squatina californica* 738–744.
- Cameroon, *Brycinus (kingsleyae, opisthotaenia)* 363–372.
- Canada, *Rana (pretiosa [Brit. Col.], luteiventris [Brit. Col., Yukon])* 1–8; *Hexagrammos decagrammus (Brit. Col.)* 9–15; *Pungitius pungitius* (Alb., Yukon) 558–564.
- Colorado, freshwater stream fishes 706–724.
- Congo, *Brycinus (kingsleyae, opisthotaenia)* 363–372.
- Cuba, *Cyclura nubiola* 766–776.
- Ecuador, *Gonatodes humeralis* 32–43; *Pygocentrus nattereri* 179–182.
- Equatorial Guinea, *Brycinus (kingsleyae, opisthotaenia)* 363–372.
- Florida, *Sternotherus odoratus* 16–21; *Etheostoma (Doration) stigmaeum* 60–69; *Dasysotis sabina* 220–223; *Rivulus marmoratus* 596–600; *Fundulus (Zygionectes) (escambiae, lineolatus, chrysotus)* 858–862.
- Gabon, *Brycinus (kingsleyae, opisthotaenia)* 363–372.
- Georgia, *Sternotherus odoratus* 16–21; *Etheostoma (Doration) jessiae* 60–69.
- Greece, *Pungitius hellenicus* 558–564.
- Guatemala, *Ctenosaura palearis* 138–150.
- Honduras, *Ctenosaura (melanosterna n. sp., bakeri, oedirhina)* 138–150.
- Idaho, *Rana luteiventris* 1–8.
- Illinois, *Trachemys scripta elegans*, *Chelydra serpentina* 166–173; *Etheostoma gracile* 265–274; *Trachemys scripta* 339–345; *Etheostoma spectabile* 496–522.
- India, *Polypedates maculatus* 88–100; *Solenostomus tuticoriensis = Macrorhamphosodes platycheilus* 888–889.
- Indiana, *Nerodia sipedon* 306–318; *Etheostoma spectabile* 496–522; *Pungitius pungitius* 558–564.
- Iowa, *Etheostoma spectabile* 496–522.
- Ireland, *Pungitius pungitius* 558–564.
- Japan, *Pungitius pungitius* 558–564; *Hemibarbus barbus* 620–622.
- Kansas, *Cretosyrhina mantelli* (fossil) 233–235; *Etheostoma spectabile* 496–522.
- Kentucky, *Etheostoma (Doration) stigmaeum* 60–69; *Phoxinus cumberlandensis × Semotilus atromaculatus* 204–209; *Etheostoma (spectabile, bison n. sp., tecumsehii n. sp., kantuckense n. sp.)* 496–522.
- Louisiana, *Sternotherus odoratus* 16–21; *Etheostoma (Doration) stigmaeum* 60–69; *Fundulus (Zygionectes) (notti, dispar, blairae, olivaceus)* 858–862.
- Madagascar, *Boophis xerophilus n. sp., Polypedates tephraeomystax = Boophis tephraeomystax, Rhacophorus doulioti = Boophis doulioti* 572–578.
- Malaysia, *Leptolalax (heteropus [Penin.], gracilis [Sar.], dringi [Sar.], hamidi n. sp. [Sar.], arayai n. sp. [Sab.])* 158–165.
- Maryland, *Malaclemys terrapin* 290–297.
- Mexico, *Sceloporus grammicus* (Mex.) 108–115; *Kinosternon leucostomum* (Vera Cruz) 123–130; *Sceloporus aeneus* (Mex.) 827–833.
- Michigan, *Etheostoma spectabile* 496–522.
- Mississippi, *Sternotherus odoratus* 16–21; *Etheostoma (Doration) stigmaeum* 60–69; *Fundulus (Zygionectes) notti* 858–862.
- Missouri, *Sternotherus odoratus* 16–21; *Trachemys scripta elegans* 166–173; *Etheostoma* (6 spp.) 265–274; *Etheostoma (fragi n. comb., uniporum n. comb., burri n. sp., spectabile)* 496–522; *Fundulus (Zygionectes) sciadicus* 858–862.
- Montana, *Rana luteiventris* 1–8.
- Namibia, *Agama (aculeata, planiceps)* 875–880.
- Nebraska, *Chelydra serpentina* 884–887.
- Nevada, *Rana luteiventris* 1–8; *Gopherus agassizii* 523–530, 802–810.
- New Jersey, *Ophidion marginatum* 610–612.
- New Mexico, *Urosaurus ornatus* 174–178; *Terrapene ornata luteola* 819–826; *Cnemidophorus tessellatus* 863–868.
- New York, *Hyla versicolor* 356–362.
- North Carolina, *Sternotherus odoratus* 16–21; *Etheostoma (Doration) jessiae* 60–69; *Desmognathus quadramaculatus* 131–137; *Eurycea wilderae* 131–137, 439–443; *Eurycea junaluska* 210–215.
- Ohio, *Etheostoma spectabile* 496–522.
- Oklahoma, *Crotaphytus collaris collaris* 565–571.
- Oregon, *Rana (pretiosa, luteiventris)* 1–8; *Batrachoseps wrighti* 697–705.
- Palau Is., *Platymantis pelewensis* 183–187.
- Panama, *Physalaemus pustulosus* 447–450.



- Papua New Guinea, *Platymantis papuensis* 183-187; *Hoplostethus pohle* n. sp. 382-387.
- Paraguay, *Pygocentrus nattereri* 179-182.
- Pennsylvania, *Pseudacris crucifer* 260-264.
- Peru, *Pygocentrus nattereri* 179-182; *Monistancistrus carachama* = *Pseudorinelepis carachama* 227-232; *Eleutherodactylus* (*skydmainos* n. sp., *karcharias* n. sp.) 388-394.
- Philippines, *Platymantis dorsalis* 183-187.
- Poland, *Pungitius pungitius* 558-564.
- Puerto Rico, *Gramma loreto* 22-31.
- Rhode Island, *Anguilla rostrata* 415-420.
- Romania, *Pungitius platygaster* 558-564.
- Russia, *Pungitius* (*pungitius*, *platygaster*) 558-564.
- Rwanda, *Xenopus wittei* 601-609.
- South Africa, *Platysaurus capensis* 811-818.
- South Carolina, *Sternotherus odoratus* 16-21; *Alligator mississippiensis* 224-226; *Eumeces laticeps* 613-619; *Gambusia holbrooki* 869-874.
- Spain, *Lacerta lepida* 461-463; *Podarcis lilfordi* 593-595.
- Sweden, *Lacerta agilis* 456-460.
- Switzerland, *Rana* (*lessonae*, *esculenta* = *lessonae* × *ridibunda*) 275-283.
- Taiwan, *Rhinodon typus* 444-446.
- Tennessee, *Etheostoma* (*Doration*) (*stigmaeum*, *jessiae*) 60-69; *Etheostoma* (*Nothonotus*) *denoncourtii* n. sp. 116-122; *Phoxinus tennesseensis* × *Semotilus atromaculatus* 204-209; *Etheostoma* (7 spp.) 265-274; *Etheostoma* (*bison* n. sp., *kantuckense* n. sp.) 496-522.
- Texas, *Cyprinodon variegatus* 77-87; *Urosaurus ornatus* 174-178; *Menidia* (*beryllina*, *peninsulae*, *clarkhubbsi*, *beryllina* × *peninsulae*) 249-259; *Cophosaurus texanus* 725-737.
- Thailand, *Himantura signifer* 101-107.
- Utah, *Rana luteiventris* 1-8; *Gopherus agassizii* 523-530.
- Venezuela, *Tupinambis teguixin* 200-203; *Cichla* (*intermedia*, *orinocensis*, *temensis*) 690-696.
- Vietnam, *Rana* cf. *blythi* 464-465.
- Virginia, *Sternotherus odoratus* 16-21; *Akistrodon piscivorus* 53-59; *Etheostoma* (*Doration*) *jessiae* 60-69; *Plethodon cinereus* 70-76, 410-414; *Etheostoma* (*Nothonotus*) *denoncourtii* n. sp. 116-122; *Etheostoma* (3 spp.) 265-274; *Sceloporus undulatus* 827-833.
- Washington, *Rana* (*pretiosa*, *luteiventris*) 1-8.
- Wyoming, *Rana luteiventris* 1-8.
- Zaire, *Brycinus kingsleyae* 363-372.
- GROWTH**, *Dermogenys* sp. (& dev. of andropodium rel. to body growth) 44-52; *Desmognathus quadramaculatus*, *Eurycea wilderae* (eff. of pred. on prey growth) 131-137; *Cretoxyrhina mantelli* (bands on vert. centra, fossil shark) 233-235; *Rhinodon typus* (of uterine embryo after birth) 444-446; *Lacerta agilis* (rate rel. to male breeding color var.) 456-460; *Cychura nubila* (eff. of incub. temp. & water avail. on hatching growth) 766-776.
- HABITAT**, *Hexagrammos decagrammus* (of nests) 9-15; *Gonatodes humeralis* (hab. & microhab. shifts) 32-43; *Etheostoma* (*Doration*) (*stigmaeum*, *jessiae*) (of egg-laying, larvae) 60-69; *Kinosternon leucostomum* (hab. use, terrest. & aquat., radiotelem.) 123-130; *Ctenosaura melanosterna* n. sp., *bakeri*, *oedirhina* (notes) 138-150; *Eleutherodactylus* (*Craugastor*) (*fraudator*, *pluvicanorus* n. sp.) (notes) 151-157; *Phoxinus tennesseensis* × *Semotilus atromaculatus*, *P. cumberlandensis* × *S. atromaculatus* (natural hybrids possibly due to hab. alter.) 204-209; *Menidia* (*beryllina*, *peninsulae*, *clarkhubbsi*, *beryllina* × *peninsulae*) (hab. segreg., unisex.-bisex. sp. complex) 249-259; *Spicospina* n. gen. *flammarocerulea* n. sp. (notes) 373-381; *Hoplostethus pohle* n. sp. (deep reef) 382-387; *Eleutherodactylus* (*skydmainos* n. sp., *karcharias* n. sp.) (notes) 388-394; *Rana* cf. *blythi* (microhab. of nesting) 464-465; *Etheostoma* (*fragi* n. comb., *uniporum* n. comb., *burri* n. sp., *spectabile*, *bison* n. sp., *tecumsehi* n. sp., *kantuckense* n. sp.) (all spp. same hab.) 496-522; *Characidium* (*serrano* n. sp., *orientale* n. sp., *occidentale* n. sp., *pteroisticum*, *rachovii*, *tenuis*, cf. *zebra*) (notes) 531-548; *Boophis xerophilus* n. sp. (restricted to dry forest, unique for genus) 572-578; *Hemibarbus barbus* (microhab. of spawning) 620-622; *Cichla* (*intermedia*, *orinocensis*, *temensis*) (microhab. diff. btwn. sympat. piscivores) 690-696; *Cophosaurus texanus* (thermal constraints in microhab. choice) 725-737; *Squatina californica* (deep channel forms barrier btwn. nearby popns.) 738-744; *Cnemidophorus* (*lemniscatus*, *cryptus*) (compare popns. & unisex. sp. to sympat. parent sp.) 745-757; *Sceloporus* (*scularis*, *aneus*, *undulatus*, *virgatus*) (eff. of low temps. on eggs, high & low elev. popns. compared) 827-833; *Lutjanus campechanus* (fish stay on artificial reefs, ultrason. tracking) 846-850.
- HERMAPHRODITISM**, *Gramma loreto* (expected protogyny not found) 22-31; *Rivulus marmoratus* (diandric protogynous herm.) 596-600.
- HIBERNATION**, *Akistrodon piscivorus* (surv. rel. to lipid reserves, body size & temp.) 53-59; *Kinosternon leucostomum* (aestiv. sites rel. to home range) 123-130; *Pseudacris crucifer* (freeze duration import. in surv.) 260-264.
- HISTOLOGY**, *Gramma loreto* (gonad hist. confirms lack of protogyny) 22-31; *Dermogenys* sp. (dev. of testis & andropodium) 44-52; *Polypedates maculatus* (of secretions in wiping beh. in tree frogs) 88-100; *Himantura signifer* (of electroreceptors in freshwater stingray) 101-107; *Anguilla rostrata* (gonad gender, anat. & hist.) 415-420; *Cheirodontinae* (8 spp.) (hist. evid. of intern. fert.) 433-438; *Rivulus marmoratus* (hist. evid. for diandric protogynous hermaph.) 596-600.
- HOME RANGE**, *Plethodon cinereus* (scent-marking & territ.) 70-76; *Kinosternon leucostomum* (activ. area, aestiv. & nest sites, radiotelem.) 123-130; *Plethodon cinereus* (aspects of territ. beh.) 410-414; *Anolis grahami* (territ. response to video playback in wild) 421-423; *Eurycea wilderae* (territ. beh., aquat. larv. in lab) 439-443; *Hemibarbus barbus* (male territ. during spawning) 620-622; *Tropidurus itambere* (seas., gender diff., rel. to reprod., territ. defence) 623-628; *Lutjanus campechanus* (fish stay on artificial reefs, ultrason. tracking) 846-850.
- HYBRIDIZATION**, *Phoxinus tennesseensis* × *Semotilus atromaculatus*, *P. cumberlandensis* × *S. atromaculatus*

- (natural hybrids, first records) 204-209; *Menidia* (*beryllina*, *peninsulæ*, *clarkhubbsi*, *beryllina* × *peninsulæ*) (interrel. of hybrids, hybrid origin, unisex-bisex. sp. complex) 249-259; *Rana* (*lessonae*, *esculenta* = *lessonae* × *ridibunda*) (fem. mate choice in maint. hybrid sp. in popn.) 275-283; *Brycinus* (*kingsleyae*, *opisthotaenia*) (some intermed. specimens in sympatry) 363-372; *Neobatrachus* (all 10 spp.) (poss. origin of tetraploid spp. from diploid spp.) 791-801.
- IMMUNOLOGY**, *Amphiprion* (*clarkii*, *ocellaris*, *perideraion*) (anemone antigens in anemonefish mucus) 284-289.
- LARVAE**, *Etheostoma* (*Doration*) (*stigmaeum*, *jessiae*) (ontogen. traits as system. charcs., hab. of larvae) 60-69; *Desmognathus quadramaculatus*, *Eurycea wilderae* (eff. of pred. on prey growth, surv. & metamorph.) 131-137; *Eurycea junaluska* (larvae disting. from sympat. congeners by color) 210-215; *Eurycea wilderae* (agon. & spacing beh. in lab) 439-443.
- LATERAL LINE**, *Dasyatis brevicaudata* (detects water pressure from clams) 881-883.
- LIFE HISTORY**, *Etheostoma* (*Doration*) (*stigmaeum*, *jessiae*) (early life hist. traits as system. charcs.) 60-69; *Etheostoma* (*Nothonotus*) *denoncourtii* n. sp. (notes) 116-122; *Desmognathus quadramaculatus*, *Eurycea wilderae* (eff. of pred. on prey life hist.) 131-137; *Urosaurus ornatus* (gen. diverg. btwn. isol. popns. rel. to life hist. var.) 174-178; *Malaclemys terrapin* (5-yr. egg & clutch size var.) 290-297; *Cophosaurus texanus* (thermal constraints in microhab. choice, possible life hist. conseqs.) 725-737; *Cnemidophorus* (*lemniscatus*, *cryptus*) (compare popns. & unisex. sp. to sympat. parent sp.) 745-757.
- LIGHT**, *Physalaemus pustulosus* (levels aff. female mate choice) 447-450; *Crotaphytus collaris* (brightness of body color, sex. dichrom.) 565-571.
- LOCOMOTION**, *Opheodrys aestivus* (gravidity red. crawl speed) 191-194; *Xenopus wittei* (swimming & postures during mating) 601-609; *Hemibarbus barbus* (loc. & posture during spawning) 620-622; *Chelydra serpentina* (juvs. use of tails in terrest. loc.) 884-887.
- METHODS**, turtles (eff. of meth. on diffs. in reported swimming rates) 166-173; *Pygocentrus* (*ternetzi*, *nattereri*) (modif. truss anal. improves shape info.) 179-182; *Betta splendens* (computer anim. for study of resp. to vis. stim.) 195-199; *Nerodia sipedon* (correction factor for rel. clutch mass deter.) 306-318; *Elaphe obsoleta* (cardiopulm. eff. of anesthetic ketamine HCl on snakes) 395-400; *Anguilla rostrata* (sex determ. of silver phase eels) 415-420; *Anolis grahami* (video playback in wild) 421-423; freshwater stream fishes (natural var. in stream fish assemblages, import. of data scale) 706-724; *Cophosaurus texanus* (meas. temper. by microhab. w/ diel pttns.) 725-737; preserved fishes (cyanine blue, stain for surface features, small specimens) 840-841; *Trachemys scripta*, *Deirochelys reticularia* (using claws to age turtles) 842-845; *Lutjanus campechanus* (ultrasound tracking of fish) 846-850; *Crocodylus johnstoni* (ultrasound to assess repro. stat. in wild popn.) 851-857.
- MITOCHONDRIAL DNA**, *Hexagrammos decagrammus* (to ident. matern. of eggs) 9-15; *Sternotherus odoratus* (mtDNA diverg. w/in morph. homogen. sp.) 16-21; *Urosaurus ornatus* (mtDNA diverg. btwn. isol. popns. rel. to ecol. & life hist. var.) 174-178; *Brachyrhaphis* (9 spp.), *Gambusia* (3 spp.), *Belonesox belizanus* (clad. anal., mtDNA data) 298-305; *Crystallaria asprella*, *Etheostoma* (27 spp., all subgen.), *Percina* (5 spp.) (control region of mtDNA has phylogen. signif.) 319-338; *Agkistrodon* (*halys*, *contortrix*), *Lachesis muta*, *Crotalus viridis* (in phyl. anal.) 429-432; *Gopherus agassizii* (genet. distinct popns., rel. to conserv. mngmnt.) 523-530; *Neobatrachus* (*sudelli*, *centralis*, *kunapalari*, *aquiloni*) (in anal. of origins of tetraploid spp.) 680-689; *Luxilus* (all spp.) (cyt b seqs., phyl. anal., rels. btwn. spp. groups) 758-765; *Fundulus* (*Zygionectes*) (*notti*, *escambiae*, *lineolatus*, *dispar*, *blairae*, *sciadicus*, *olivaceus*, *chrysotus*) (cyt b seqs., phyl. anal. of *F. notti* sp. group) 858-862.
- MORPHOLOGY**, *Sternotherus odoratus* (morph. homogen. despite genet. diverg.) 16-21; *Himantura signifer* (of electroreceptors in freshwater stingray) 101-107.
- NESTING**, *Hexagrammos decagrammus* (mult. matern. in nest, nest descript. & hab.) 9-15; *Gonatodes humeralis* (descript., multi-spp. nests) 32-43; *Kinosternon leucostomum* (nest sites rel. to home range, seas., microhab.) 123-130; *Phoxinus tennesseensis* × *Semotilus atromaculatus*, *P. cumberlandensis* × *S. atromaculatus* (natural hybrids due to communal nesting) 204-209; *Trachemys scripta* (htchlgs. overwinter in nests, rel. to freeze resist. & distrib.) 339-345; *Rana* cf. *blythi* (descript., microhab.) 464-465; *Chiasmocleis leucosticta* (bubble nests, unique for anurans) 585-588; *Batrachoseps* (*nigriiventris*, *wrighti*) (commun. nests, lack parent. care) 697-705; *Cyclura nubila* (eff. of incub. temp. & water avail. on htchl. growth) 766-776; *Gopherus agassizii* (chem. cues in burrow choice) 802-810; *Sceloporus* (*scalaris*, *aeneus*, *undulatus*, *virgatus*) (eff. of low temps. on eggs, high & low elev. popns. compared) 827-833.
- NOMENCLATURE**, *Monistancistrus carachama* = *Pseudorinelepis carachama*, *Plecotomus lacerta* = *Kronichthys lacerta*, *Rhinelepis levis* = *Cochliodon levis* (generic reassign.) 227-232; *Boophis xerophilus* n. sp., *Polypedates tephraeomystax* = *Boophis tephraeomystax*, *Rhacophorus douliti* = *Boophis douliti* (n. sp., lectotypes design. for others, nomen. anal. of sp. complex) 572-578; *Stombus precrenulatus* = *Proceratophrys schirchi* (previous valid name) 629-631; *Solenostomus tucicoriensis* = *Macrorhamphosodes platycheilus* 888-889.

- OLFACTION, *Plethodon cinereus* (scent-marking & olf. beh. in territor.) 70-76; *Gopherus agassizii* (chem. cues in burrow choice) 802-810.
- OSTEOLOGY, *Dermogenys* sp. (in dev. of andropodium) 44-52; *Cretoxyrhina mantelli* (bands on vert. centra, fossil shark) 233-235; *Spicospina* n. gen. *flammocaerulea* n. sp. (descript.) 373-381; *Eleutherodactylus skydmainos* n. sp. (descript.) 388-394; *Pungitius (hellenicus, pungitius, platygaster)* (supports valid. of *P. hellenicus*) 558-564; Poeciliini (*Limia*, *Pamphorichthys*, *Xiphophorus*, *Poecilia*, *Alfaro*, *Priapella*) (rel. to gonopodium, in clad. anal.) 663-679; *Ictiurus punctatus* (sound product. mech.) 777-790.
- PALEONTOLOGY, *Cretoxyrhina mantelli* (late Cret., bands on vert. centra, possible age & growth info.) 233-235.
- PARASITES, *Eleutherodactylus (Craugastor) fraudulentus* (dermal) 151-157; *Labroides dimidiatus* (cleaner wrasse diet mostly fish ectoparasites) 346-355; *Xenopus laevis* (African parasites introd. with frog) 589-592; *Agama (aculeata, planiceps)* (gut nematodes infect. rates var. by hab., eff. on hosts) 875-880.
- PAROTOID GLAND, *Spicospina* n. gen. *flammocaerulea* n. sp. (massive) 373-381.
- PARTHENOGENESIS, *Cnemidophorus (lemniscatus, cryptus)* (parth. unisex. sp. *C. cryptus*, ecol. diffs. from sympat. parent sp.) 745-757; *Cnemidophorus tessellatus* (repro. & size diffs. btwn. sympat. pattern classes of parthen. sp.) 863-868.
- PHEROMONES, *Plethodon cinereus* (scent-marking & territ. beh.) 70-76; *Gopherus agassizii* (chem. cues in burrow choice) 802-810.
- PHYLOGENETIC ANALYSIS, *Dermogenys* sp. (morph. of andropodium for phylogen. charcs.) 44-52; *Etheostoma (Doration) (stigmaeum, jessiae)* (ontogen. traits as system. charcs.) 60-69; *Ctenosaura (melanosterna* n. sp., *palearis, bakeri, oedirhina*) (evid. for clade) 138-150; *Eleutherodactylus (Craugastor) (fraudator, pluvianorus* n. sp.) (sister spp., clad. anal. of jaw muscles) 151-157; *Crystallaria asprella*, *Percina* (3 spp., 3 subgen.), *Etheostoma* (22 spp., 15 subgen.) (clad. anal., allozymes) 265-274; *Brachyrhaphis* (9 spp.), *Gambusia* (3 spp.), *Belonesox belizanus* (clad. anal., mtDNA data) 298-305; *Crystallaria asprella*, *Etheostoma* (27 spp., all subgen.), *Percina* (5 spp.) (clad. anal. based on mtDNA control region seq.) 319-338; Argentinoides (redo Begle's Argentinoid trees w/ corrections, get diff. trees, clad. anal.) 401-409; *Akistrodon (hals, contortrix)*, *Lachesis muta*, *Crotalus viridis* (clad. anal., mtDNA data) 429-432; Poeciliini (*Limia*, *Pamphorichthys*, *Xiphophorus*, *Poecilia*, *Alfaro*, *Priapella*) (clad. anal. of tribe, diagnose genera) 663-679; *Neobatrachus (sudelli, centralis, kunapalari, aquilonius)* (clad. anal. of tetraploid spp. & diploid rels.) 680-689; *Luxilus* (all spp.) (clad. anal., rels. btwn. spp. groups, mtDNA data) 758-765; *Fundulus (Zygionectes)* (*notti, escambiae, lineolatus, dispar, blairae, sciadicus, olivaceus, chrysotus*) (clad. anal. *F. notti* sp. group, mtDNA data) 858-862.
- PHYSIOLOGY, *Akistrodon piscivorus* (lipid reserve seas. var., rel. to body size, reprod., & hibern.) 53-59; *Cyprinodon variegatus* (extreme temp. range toler.) 77-87; *Polydactylus maculatus* (wiping beh. in water conserv.) 88-100; *Tupinambis teguixin* (met. rate in wild trop. lizard, seas. var.) 200-203; *Pseudacris crucifer* (duration of freeze toler. import.) 260-264; *Hyla versicolor* (energy source for calling) 356-362; *Elaphe obsoleta* (cardiopulm. eff. of anesthetic ketamine HCl on snakes) 395-400; *Isurus oxyrinchus* (cardiovasc. physiol. in swimming sharks) 424-428; *Staurotypus triporcatus*, *Kinosternon leucostomum* (air & aquat. respir., gas exchg. rates) 834-839.
- POLLINATION, *Podarcis lilfordi* (lizard pollinator) 593-595.
- POPULATIONS, *Sternotherus odoratus* (mtDNA diffs. btwn. morph. sim. popns.) 16-21; *Gramma loreto* (popn. charcs. suggest protogyny, none found) 22-31; *Gonatodes humeralis* (geogr. var. in hab., size, morph. & prey size) 32-43; *Akistrodon piscivorus* (N. popn. large body size rel. to lipid reserves) 53-59; *Urosaurus ornatus* (gen. diverg. btwn. isol. popns. rel. to ecol. & life hist. var.) 174-178; *Menidia (beryllina, peninsulae, clarkhubbsi, beryllina × peninsulae)* (maint. of sympat. popns., unisex.-bisex. sp. complex) 249-259; *Rana (lessonae, esculenta = lessonae × ridibunda)* (fem. mate choice in maint. of mixed hybrid sp. & parental sp. in popn.) 275-283; *Gopherus agassizii* (genet. distinct popns., rel. to conserv. mngmnt.) 523-530; *Crotaphytus collaris collaris* (popn. var. in sex. dichrom.) 565-571; *Cichla (intermedia, orinocensis, temensis)* (ecol. of popns. of sympat. piscivores, 3 spp. in one area, 2 spp. in other) 690-696; *Cophosaurus texanus* (var. btwn. popns. of thermal constraints in microhab. choice, possible life hist. conseqs.) 725-737; *Squatina californica* (genet. diverg. btwn. nearby popns., allozyme data) 738-744; *Cnemidophorus (lemniscatus, cryptus)* (ecol. diffs., compare popns. & unisex. sp. to sympat. parent sp.) 745-757; *Sceloporus (scularis, aeneus, undulatus, virgatus)* (eff. of low temps. on eggs, high & low elev. popns. compared) 827-833.
- POSTCLOACAL GLANDS, *Plethodon cinereus* (in scent-marking) 70-76.
- PREDATION, *Gonatodes humeralis* (sit-&-wait pred., geogr. var. in prey size) 32-43; *Himantura signifer* (electroreceptor distrib. rel. to pred. beh.) 101-107; *Desmognathus quadramaculatus*, *Eurycea wilderae* (eff. of pred. on prey life hist.) 131-137; *Opheodrys aestivus* (gravity red. crawl speed, increases pred.) 191-194; *Labroides dimidiatus* (cleaner wrasse loc. & seas. var. in prey) 346-355; *Physalaemus pustulosus* (light level & pred. risk) 447-450; *Lacerta lepida* (prey diffs. rel. to ontog. dental changes) 461-463; *Crotalinae* (evol. of crotaline rattle) 485-495; *Xenopus laevis*, *Eucyclogobius newberryi* (introd. frog preys on endgrd. goby) 589-592; *Eumeces laticeps* (antipred. beh. ptms. rel. to pred. orient.) 613-619; *Cichla (intermedia, orinocensis, temensis)* (prey diffs. in sympat. piscivores, seas. diffs.) 690-696; *Cnemidophorus (lemniscatus, cryptus)* (prey size,



compare popns. & unisex. sp. to sympat. parent sp.) 745-757.

**REPRODUCTION**, *Hexagrammos decagrammus* (nesting, matern. of eggs in nest) 9-15; *Gramma loreto* (expected protogyny not found) 22-31; *Gonatodes humeralis* (size at matur., fecund., egg # & stage, nests) 32-43; *Agkistrodon piscivorus* (rel. to lipid reserves, body size, hibern. temp.) 53-59; *Etheostoma (Doration) (stigmaeum, jessiae)* (mating beh., egg-laying) 60-69; *Sceloporus grammicus* (hypoth. for diffs. in therm. reg. in gravid fems.) 108-115; *Etheostoma (Nothonotus) denoncourtii* n. sp. (notes) 116-122; *Kinosternon leucostomum* (seas., nest sites nocturn., nest microhab.) 123-130; *Ctenosaura melanosterna* n. sp. (notes on seas., eggs) 138-150; *Trachemys scripta elegans*, *Chelydra serpentina* (twinning rates, survival, disadvantage) 166-173; *Oreochromis* (14 spp.) (spawning beh. in fem. mouthbrooders, male compet.) 188-190; *Ophedryx aestivus* (gravity red. crawl speed) 191-194; *Phoxinus tennesseensis* × *Semotilus atromaculatus*, *P. cumberlandensis* × *S. atromaculatus* (natural hybrids due to communal spawning) 204-209; *Rana (lessonea, esculenta = lessonea × ridibunda)* (fem. mate choice in maint. hybrid sp. in popn.) 275-283; *Malaclemys terrapin* (5-yr. egg & clutch size var.) 290-297; *Nerodia sipedon* (correction factor for rel. clutch mass deter.) 306-318; *Spicospina* n. gen. *flammocaerulea* n. sp. (notes) 373-381; *Eleutherodactylus skydmainos* n. sp. (notes) 388-394; *Cheirodontinae* (8 spp.) (histol. evid. of intern. fert.) 433-438; *Rhincodon typus* (embryos & egg cases from dead female) 444-446; *Physalaemus pustulosus* (female mate choice, aff. by light levels) 447-450; *Lacerta agilis* (var. in male breeding colors) 456-460; *Rana cf. blythi* (nesting, calls, mating, male-male aggres.) 464-465; *Chiasmocleis leucosticta* (bubble nests, unique for anurans) 585-588; *Rivulus marmoratus* (diandric protogynous hermaph.) 596-600; *Xenopus wittei* (mating beh. in wild-caught frogs) 601-609; *Ophidion marginatum* (sounds during ctshp. & spawning) 610-612; *Hemibarbus barbus* (spawning beh. in wild) 620-622; *Tropidurus itambere* (territ. size var. with repro. seas.) 623-628; *Cichla (intermedia, orinocensis, temensis)* (repro. seas.) 690-696; *Batrachoseps (nigri-ventris, wrighti)* (commun. nests, lack parent care) 697-705; *Cnemidophorus (lemniscatus, cryptus)* (clutch size, compare unisex. sp. to sympat. parent sp.) 745-757; *Cydura nubilata* (fecund., incub. temp. aff. hatch. growth) 766-776; *Gopherus agassizii* (chem. cues in burrow choice dur. repro. seas.) 802-810; *Terrapene ornata luteola* (seas., rel. to rainfall, size at matur., clutch size & freq., opt. egg size theory tested, compared to *T. o. ornata*) 819-826; *Sceloporus (scalaris, aeneus, undulatus, virgatus)* (eff. of low temps. on eggs, high & low elev. popns. compared) 827-833; *Crocodylus johnstoni* (ultrasonogram to assess repro. stat. in wild popn.) 851-857; *Cnemidophorus tessellatus* (repro. & size diffs. btwn. sympat. pattern classes of parthen. sp.) 863-868; *Gambusia holbrooki* (repro. evid. for potent. evol. of optim. offspg. size) 869-874.

**RESPIRATION**, *Alligator mississippiensis* (make air

holes during brief ice cover) 224-226; *Pseudacris crucifer* (in postfreeze recovery) 260-264; *Hyla versicolor* (resp. quot. indicates energy source for calling) 356-362; *Elaphe obsoleta* (eff. of anesthetic ketamine HCl on snakes) 395-400; *Staurotypus triporcatus*, *Kinosternon leucostomum* (air & aqat. respir., beh. & gas exchg. rates) 834-839.

**SALINITY**, *Dasyatis sabina* (spine replcmnt. in freshwater popn. same as marine popns.) 220-223.

**SEX**, *Gonatodes humeralis* (gender & age color diffs.) 32-43; *Menidia (beryllina, peninsulae, clarkhubbsi, beryllina × peninsulae)* (ptns. of abund., unisex.-bisex. sp. complex) 249-259; *Anguilla rostrata* (sex determ. of silver phase eels, lopsided sex ratios) 415-420; *Alligatoridae* (6 spp.), *Crocodylidae* (7 spp.) (sex ratios, literature sum.) 451-455; *Rivulus marmoratus* (age-rel. gender changes, hermaph.) 596-600.

**SEXUAL DIMORPHISM**, *Gramma loreto* (size dimorph. suggests protogyny, none found) 22-31; *Gonatodes humeralis* (color dimorph.) 32-43; *Eleutherodactylus skydmainos* n. sp. (males smaller) 388-394; *Anguilla rostrata* (body size, in silver phase eels) 415-420; *Rana cf. blythi* (rel. to male-male aggres.) 464-465; *Characidium rachovii* (male fins larger) 531-548; *Crotaphytus collaris* (geogr. var. in sex. dichrom.) 565-571; *Tropidurus itambere* (body size & home range) 623-628.

**SIZE**, *Hexagrammos decagrammus* (ovarian eggs) 9-15; *Gramma loreto* (size dimorph. suggests protogyny, none found) 22-31; *Gonatodes humeralis* (body size, rel. to egg size, prey size, geogr. var.) 32-43; *Agkistrodon piscivorus* (body size rel. to lipid reserves) 53-59; *Trachemys scripta elegans* (twinning rates rel. to size of mother) 166-173; *Platymantis (pelewensis, dorsalis, papuensis)* (closest rels. differ in size) 183-187; *Malaclemys terrapin* (5-yr. egg & clutch size var.) 290-297; *Nerodia sipedon* (correction factor for rel. clutch mass deter.) 306-318; *Anguilla rostrata* (sex. dimorph. in silver phase eels) 415-420; *Eurycea wilderae* (larv. agon. beh. rel. to body size) 439-443; *Rhincodon typus* (of uterine embryos & egg cases) 444-446; *Cichla (intermedia, orinocensis, temensis)* (diffs. btwn. sympat. piscivores) 690-696; *Cnemidophorus (lemniscatus, cryptus)* (body size & prey size, compare popns. & unisex. sp. to sympat. parent sp.) 745-757; *Terrapene ornata luteola* (opt. egg size theory tested, clutch size rel. to matern. size) 819-826; *Cnemidophorus tessellatus* (repro. & size diffs. btwn. sympat. pattern classes of parthen. sp.) 863-868.

**SOUNDS**, *Ophidion marginatum* (during ctshp., sonagrams) 610-612; *Ictalurus punctatus* (anat. of pectoral spine & locking rel. to sound product.) 777-790.

**SURVIVAL**, *Agkistrodon piscivorus* (lipid reserve & body size rel. to hibern. surv.) 53-59; *Cyprinodon variegatus* (at extreme temperatures) 77-87; *Desmognathus quadramaculatus*, *Eurycea wilderae* (eff. of pred. on prey surv.) 131-137; *Trachemys*

- scripta elegans*, *Chelydra serpentina* (of twins) 166-173; *Alligator mississippiensis* (during brief ice cover, rel. to age) 224-226; *Pseudacris crucifer* (freeze toler. & recov., freeze duration import.) 260-264; *Trachemys scripta* (of overwintering hatchlings, rel. to distrib.) 339-345.
- SYMBIOSIS**, *Amphiprion* (*clarkii*, *ocellaris*, *perideraion*) (char. & devel. of anemonefish protect. from anemones) 284-289.
- SYSTEMATICS**, *Rana* (*pretiosa*, *huleiventris*) (cryptic spp. disting. by allozymes not morphol., rediagn.) 1-8; *Sternotherus odoratus* (genet. diverg. w/in morph. homogen. sp.) 16-21; *Etheostoma* (*Doration*) (*stigmaeum*, *jessiae*) (ontogen. traits rel. to sp. distinct.) 60-69; *Etheostoma* (*Nothonotus*) *demoncourti* n. sp. (n. sp. compar. to *E. tippecanoe*) 116-122; *Ctenosaura* (*melanosterna* n. sp., *palearis*, *bakeri*, *oedrinina*) (n. sp., evid. for clade) 138-150; *Eleutherodactylus* (*Craugastor*) (*fraudator*, *pluvianorus* n. sp.) (n. sp., sister spp., phylogen. anal.) 151-157; *Leptolalax* (*heteropus*, *gracilis*, *dringi*, *hamidi* n. sp., *aruyai* n. sp.) (n. sp. based on call diffs. & morph., key to Bornean spp.) 158-165; *Pygocentrus* (*ternetzi*, *nattereri*) (evid. *P. ternetzi* invalid) 179-182; *Platymanis* (*peleuensis*, *dorsalis*, *papuensis*) (phylogen. rels. btwn. spp. inferred from calls & kar.) 183-187; *Monistancistrus carachama* = *Pseudorinelepis carachama*, *Plecotomus lacerta* = *Kronichthys lacerta*, *Rhinelepis levis* = *Cochliodon levis* (generic reassign.) 227-232; *Crystallaria asprella*, *Percina* (3 spp., 3 subgen.), *Etheostoma* (22 spp., 15 subgen.) (clad. anal., allozymes, mostly supports current taxon.) 265-274; *Brachyrhaphis* (9 spp.), *Gambusia* (3 spp.), *Belonesox belizanus* (phyl. anal., mtDNA data) 298-305; *Crystallaria asprella*, *Etheostoma* (27 spp., all subgen.), *Percina* (5 spp.) (phylogen. anal., mtDNA data) 319-338; *Brycinus* (*kingsleyae*, *opisthotania*) (redescr. spp., possible hybrid. in sympatry) 363-372; *Spicospina* n. gen. *flammocaerulea* n. sp. (phylogen. notes) 373-381; *Hoplostethus pohle* n. sp. (phylogen. notes on genus) 382-387; *Eleutherodactylus* (*skydmainos* n. sp., *karcharias* n. sp.) (n. spp. in *E. conspicillatus* group) 388-394; *Argentinoidei* (redo Begle's Argentinoid trees w/ corrections, get diff. trees, clad. anal.) 401-409; *Aghkistrodon* (*halys*, *contortrix*), *Lachesis muta*, *Crotalus viridis* (phyl. anal., mtDNA data) 429-432; *Etheostoma* (*fragi* n. comb., *uniporum* n. comb., *burri* n. sp., *spectabile*, *bison* n. sp., *tumescens* n. sp., *kantuckeense* n. sp.) (n. spp. from *E. spectabile*) 496-522; *Characidium* (*serrano* n. sp., *orientale* n. sp., *occidentale* n. sp., *pterostictum*, *rachovii*, *tenuis*, cf. *zebra*) (n. spp., key to spp.) 531-548; *Pungitius* (*hellenicus*, *pungitius*, *platygaster*) (valid. of *P. hellenicus*) 558-564; *Boophis xerophilus* n. sp., *Polypedates tephraeomystax* = *Boophis tephraeomystax*, *Rhacophorus doulioti* = *Boophis doulioti* (n. sp., lectotypes design. for others) 572-578; *Poeciliini* (*Limia*, *Pamphorichthys*, *Xiphophorus*, *Poecilia*, *Alfaro*, *Priapella*) (phyl. anal. of tribe, rediagnose genera) 663-679;
- Neobatrachus* (*sudelli*, *centralis*, *kunapalari*, *aquiloni*) (phyl. anal. of tetraploid spp., conflicts w/ current taxon.) 680-689; *Luxilus* (all spp.) (phyl. anal., rels. btwn. spp. groups) 758-765; *Fundulus* (*Zygionectes*) (*nottii*, *escambiae*, *lineolatus*, *dispar*, *blairae*, *sciadicus*, *olivaceus*, *chrysotus*) (phyl. anal. *F. nottii* sp. group, mtDNA data) 858-862; *Cnemidophorus tessellatus* (repro. & size diffs. btwn. sympat. pattern classes of parthen. sp., syst. implics.) 863-868.
- TEMPERATURE**, *Gonatodes humeralis* (microhab. & body temp.) 32-43; *Aghkistrodon piscivorus* (surv. in hibern. rel. to body size, lipid reserves & temp.) 53-59; *Cyprinodon variegatus* (exper. evid. of extreme temp. range toler.) 77-87; *Sceloporus grammicus* (hypoth. for diffs. in therm. reg. in gravid fems.) 108-115; *Alligator mississippiensis* (make air holes during brief ice cover) 224-226; *Pseudacris crucifer* (freeze toler.) 260-264; *Trachemys scripta* (cold toler., freeze resist. in hatchlings, rel. to distrib.) 339-345; *Crocodylus johnstoni* (diel & seas. ptms. of thermoreg. in wild, aff. by aggres.) 549-557; *Emydura signata* (basking not raise body temp.) 579-584; *Cophosaurus texanus* (thermal constraints in microhab. choice) 725-737; *Cnemidophorus lemniscatus* (body temps., compare popns.) 745-757; *Cyclura nubila* (incub. temp. aff. hatchling growth) 766-776; *Sceloporus* (*scularis*, *aeneus*, *undulatus*, *virgatus*) (eff. of low temps. on eggs, high & low elev. popns. compared) 827-833.
- TOXICITY**, *Amphiprion* (*clarkii*, *ocellaris*, *perideraion*) (of anemones to anemonefish) 284-289.
- TRUSS ANALYSIS**, *Pygocentrus* (*ternetzi*, *nattereri*) (modif. truss anal. shows cline in body shape, evid. *P. ternetzi* invalid) 179-182; *Pungitius* (*hellenicus*, *pungitius*, *platygaster*) (supports valid. of *P. hellenicus*) 558-564.
- UNISEXUAL SPECIES**, *Menidia* (*beryllina*, *peninsulæ*, *clarkhubbsi*, *beryllina* × *peninsulæ*) (ptns. of abund., unisex.-bisex. sp. complex) 249-259; *Cnemidophorus* (*lemniscatus*, *cryptus*) (*C. cryptus*, ecol. diffs. from sympat. parent sp.) 745-757.
- VARIATION**, *Gonatodes humeralis* (geogr. var. in hab., size, morph. & prey size) 32-43; *Malaclemys terrapin* (5-yr. egg & clutch size var.) 290-297; *Crotaphytus collaris collaris* (geogr. var. in sex. dichrom.) 565-571; freshwater stream fishes (natural var. in stream fish assemblages, import. of data scale) 706-724.
- VISION**, *Betta splendens* (beh. resp. to vis. stim. from computer anim.) 195-199; *Platysaurus capensis* (choice of ripe figs by color, fig feeding in wild) 811-818.
- WATER BALANCE**, *Polypedates maculatus* (rel. to wiping beh. in tree frogs) 88-100; *Tupinambis teguixin* (in wild trop. lizard, seas. var.) 200-203; *Cyclura nubila* (incub. water avail. not aff. hatchling growth) 766-776.

